

**REMARKS**

This submission is in response to the non-final Official Action mailed June 21, 2007. Claims 1-17 were pending and were rejected. Claims 18-20 are new. Claim 9 has been canceled herein. Therefore, claims 1-8 and 10-20 are pending.

The Examiner requested that the Applicants add headings to the specification. Applicants have amended the specification to do so.

Claims 4 and 11 were rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite. The Examiner requested that the term “amount” in claim 4 be changed to “area.” Although Applicants disagree that the term “amount” is indefinite, they have amended claim 4. No change in scope is intended or effected. Applicants have amended claim 11 to correct the typographical error noted by the Examiner.

Claims 1-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,374,903 to Sears, Jr. or U.S. Patent No. 3,730,257 to Haussner and further in view of U.S. Patent No. 4,299,267 to Birat *et al.* The Examiner contends that Sears and Haussner shows the claimed invention except for a mold for a round strand and supporting plates connected to the copper tube mold. The Examiner then contends that Birat teaches molds for round strands and connecting the supporting plates to mold. According to the Examiner, it would be obvious to use a cylindrical mold and to secure the mold tube and supporting plates together to maintain structural integrity in view of the prior art as a whole. For claims 3-5, the Examiner contends that it would be obvious to obtain optimal structural parameters through routine experimentation. For claims 6, 8, 10, 11, 13, 16 and 17, it would be obvious to design a proper mold structure to maintain structural integrity.

Applicants disagree. The Examiner overlooks the particular structures claimed by Applicants. Claims 1 and 2 as amended recite that the supporting surfaces comprise supporting and connecting ribs, with the connecting ribs having securing devices that prevent transverse movement of the copper tube. None of the cited references teach or suggest such a structure. Sears states that the mold liners are "secured" to the inner services of the water jacket (Col. 7, lines 11-14) but does not teach how they are secured and certainly does not disclose doing so by ribs. In Haussner, the mold sleeve 12 is supported by a flange 63 that is brazed to the sleeve. Col. 2, lines 21-24; Fig. 1. Birat teaches using threaded tie rods 27 screwed into the inner tube 10. Col. 6, lines 1-8; Fig. 1. The claimed structures are simply absent from and not suggested in the cited art.

Furthermore, none of the cited references teach or suggest securing devices having the structures recited in claim 11 (T-profile, dovetail, etc.), the supporting surfaces having curved surfaces as recited in claim 12, or a corrosion protection layer as in claim 16.

Nor are the claimed structures obvious. The Examiner contends that it would be obvious to design a mold structure to maintain structural integrity. Even if true, and the Applicants note that the Examiner cites no evidence or art in support of his contention, the Examiner presents no basis or art as to why the particular structures recited (ribs with securing devices to prevent transverse movement, etc.) would be obvious. In other words, there is no reason, and no suggestion in the cited art, why one of ordinary skill would create and use the novel claimed structures to support the mold as opposed to the essentially *infinite* number of known or possible structures that could be used. See MPEP 2143 (none of rationales for obviousness apply). There is no suggestion in the cited art that the prior art structures (e.g., tie rods, brazed plates, etc.) were inadequate or could or should be modified, or in the manner as claimed by Applicants. See MPEP 2143.01.

The non-obviousness of the claimed structures is supported by the fact that they provide new and unforeseen advantages over the prior art. As noted in the specification, the claimed invention provides higher and more uniform cooling capacity and higher casting speeds while increasing dimensional stability during casting and reducing abrasive wear, leading to better strand quality and longer mold life. Page 2, lines 22-31. This is accomplished because the invention permits lower wall thicknesses as compare to the prior art. Page 3, lines 6-9; page 9, lines 1-3. The invention is also more easily, and accordingly less expensively, constructed and maintained than the prior art, because the copper tube can merely be slid into/out of the supporting shell. Page 5, lines 24-27; Fig. 1. This compares to the prior art such as Haussner where the flange 63 is brazed to the mold sleeve 15, or Birat which requires a multitude of threaded tie rods 27 to be inserted or removed, and does not permit longitudinal movement of the tube 10. One of ordinary skill in the art would have no expectation or prediction that the claimed structure would have these advantages. *See* MPEP 2143.02 (not obvious when no expectation of success). The cited art does not teach or suggest such advantages, and the Examiner provides no rationale as to why one of ordinary skill in the art would predict or expect such advantages.

In view of the above amendments and remarks herein, Applicants submit that the application is in condition for allowance, and such action is earnest solicited.

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Respectfully submitted,

By /Kevin L. Reiner

Kevin L. Reiner

Registration No.: 43,040

DARBY & DARBY P.C.

P.O. Box 770

Church Street Station

New York, New York 10008-0770

(212) 527-7700

(212) 527-7701 (Fax)

Attorneys/Agents For Applicant